VT-6 Expanded NATOPS Briefing Guide

1) **Aircrew**
   a) **EP / Question / Quote of the Day**
   b) **IMSAFE / Human Factors / Crew Day and Rest / Work Week limits**
   c) **Airsickness history**
   d) **Review ATJ to include:**
      i) Below MIF / incomplete items in block / SSRs
      ii) Previous hop complete or incomplete
      iii) Mandatory or optional warm up window
      iv) Review Green/Blue Card
   e) **Form Specific:** Designated Section Lead / Formation Lead
   f) **Current read and initial**
   g) **Current NATOPS / Pubs / Charts**

2) **Mission**
   a) **Side Number / Callsign**
   b) **Walk / Takeoff / Land times**
   c) **Weather / NOTAMS / AHAS / TFRs**
      -Departure field
      -Enroute fields
      -OLFs
      -Destination
      -Alternate
   d) **Flight Plan**
   e) **Profile** – Origin / Departure / Stage Maneuvers / Destination / Alternate
   f) **TOLD** (student calculates own TOLD data) For KNSE, plan worst case scenario: 6,000 ft runway, 0 winds, RWY14 at .7% downhill grade.
   g) **Fuel management**
      i) Joker / Bingo / Divert – Discuss reasoning for Joker / Bingo / Divert values and when to change them.
      ii) Minimum / Emergency Fuel – Declare minimum or emergency fuel if calculated to land below 200lbs or 120lbs respectively.
   h) **Non flying pilot duties for IMC flight and instrument approaches**
      -Call out deviations of:
         - +/- 10 KIAS, 10° of heading, +/- 100' of altitude, greater than 30° angle of bank (AoB), pitch attitudes greater than 15° nose up and 10° nose down.
         -Less than a minute to live (VSI rate greater than RADALT altitude).
         -Vertigo or Spatial-D.
         -Runway in sight.
      -Use the two-challenge rule, if the other crewmember doesn't respond after two calls, assume the controls.
      -Brief any additional assigned duties for flight.
   i) **Frequencies / NAVAIDS**
      -Presets / As Assigned / Tactical Frequencies.
      -At a minimum IP shall monitor UHF at all times for GUARD transmissions. NAVAID set to 112.3 or as required. Review VHF/UHF Tactical Frequencies (Form events only).
   j) **Radio procedures and discipline**
      -Pilot at the controls will make all radio calls unless otherwise briefed using standard clear and concise COMMS. The non-flying pilot will back up the flying pilot listening for own aircraft's callsign.
   k) **Change of aircraft controls**
      -Execute a positive three way change of controls to include the UFCP with emphasis the word "controls." i.e. "I have the controls," "You have the controls," "I have the controls." The flying pilot may request UFCP inputs from the non-flying pilot. The non-flying pilot will inform the flying pilot of any changes to

the FMS/UFCP to avoid entry errors. If in doubt as to who has the controls, maintain control and verify who has the controls. In the event of ICS failure "shake to take, pump to pass."

l) Clearing / Lookout procedures
-Call out traffic using the clock system (e.g. 1 o'clock, 2 o'clock, 3 o'clock), approximate range, high/level/low, factor/no factor.
-Be directive vice descriptive to avoid a collision (e.g. BREAK RIGHT, BREAK LEFT, etc.).
-Any crewmember can assume controls to avoid a collision.
- If directed by ATC to find traffic or follow traffic, coordinate internally before communicating externally.

3) Emergencies / Crew Coordination

a) Aircraft Emergencies and System Failures

i) Simulated: PEL vs. Power Loss
-All simulated EPs will be prefaced with "Simulated."
-SNA will state the Critical Actions Memory Items (CAMIs) over the ICS and WILL NOT move any switches or pull any circuit breakers.
-DO NOT PULL THE PCL OFF DURING A SIMULATED EP!
-In a simulated power loss scenario, the IP will set the PCL to 4-6% when SNA states "PCL-OFF."
-The SNA will retain control of the PCL for safety of flight purposes or if wave-off is required.

ii) Actual:
-Maintain aircraft control, analyze the situation, take appropriate actions, and land as soon as conditions permit.
-Pilot at the controls will execute all CAMIs or any other actions appropriate to the malfunction (as dictated by the PIC).
-No fast hands in the cockpit.
-Consult the PCL when safe to do so confirming all CAMIs and non-critical action memory items with full consideration of all notes, warnings, and cautions.
-Determine the landing criteria and land as required.

b) Aborted Takeoff
-Abort for any master warning, unsafe aircraft state, or runway hazard at or below max abort speed for the respective runway condition (dry/wet). Master cautions will be considered on a case by case basis to mitigate a high speed abort.
-The command will be "**ABORT ABORT ABORT**," maintain aircraft control: PCL IDLE, BRAKES AS REQUIRED.
-Do not sacrifice directional control for braking action.

c) Wave-Off
-Advance PCL (up to MAX, as required) while simultaneously setting the takeoff attitude.
-If required, avoid traffic IAW the FWOP OLF procedures or tower directions.
-Once stabilized with two positive rates, raise flaps as appropriate and reset power to 60%-70% to capture 120 KIAS.

d) Departing the Prepared Surface
-Conduct the emergency engine shutdown procedure as soon as departure is recognized.
-Priority is securing the PCL.
-Ejection is an option at high rates of speed, high angle off runway centerline, or departing into unfavorable terrain (more than 45° off runway centerline **and** more than 45 knots ground speed is a **technique** for considering ejection).

e) Engine Failure / Loss of Power
-Recite CAMIs.
-Maintain aircraft control.
-Confirm engine operation using primarily N1 and ITT. Use Np, Torque, etc to determine if uncommanded prop feather or other malfunction exists (e.g. compressor stall).
-Do not descend below 2000' AGL with a failed engine unless on profile, runway in sight, maneuvering capability, 300' AGL final decision to eject, 200' gear down, 100' on centerline (ORM 321).

f) **Radio Failure / ICS Failure**: Discuss troubleshooting techniques (swapping cords, checking frequencies, and audio panel, etc.).

Radio failure:

    -Squawk 7600.

    -Make all calls and announce intentions in the blind.

    -Adhere to FWOP scenarios or as dictated by FIH/PIC when outside the local area.

Loss of ICS:

Keep the mask on, if able, and use a discrete frequency on the radio not in use (246.8 or 123.45) for internal communication. If a discrete frequency does not work, ensure **cockpit altitude** is below 10,000', drop the mask and shout (continue breathing on OBOGS if above 10,000' cockpit altitude and coordinate a descent if necessary). Consult the PCL for *Loss of ICS procedure* remembering that if fully followed, UHF will be unavailable and VHF un-amplified.

-If unable to restore ICS, use pump to pass/shake to take to transfer control to the PIC. All training will be terminated and the IP will RTB or land as required.

g) **Inadvertent IMC**

VFR flight plan:

    -Maintain aircraft control.

    -Establish an instrument scan and check altitude.

    -If altitude below Maximum Elevation Figure (MEF) + 1000' or (OROCA), execute immediate climb to safe altitude turning away from known obstacles. Do not attempt to regain VMC below the calculated or published safe altitude!

    -If altitude above MEF+1000 or OROCA, with smooth coordinated controls, get out of IMC the way it was entered if climbing descend (etc.)

    -If unable to regain VMC, IP will contact nearest ATC facility and coordinate and IFR clearance. If swift contact cannot be made, Squawk 7700, declare an emergency, and use guard as appropriate.

   IFR flight plan:

    -During any VMC transition on an approach (i.e. Circling) and IMC is encountered, execute missed approach turning towards the airport and climb via the published missed or climb out instructions.

    -Reference MSA as required.

h) **Downed Pilot / Aircraft:**

-Follow procedure in TW-5 In-Flight Guide

-Set Bingo to the nearest suitable field

-Establish a max endurance profile and stay on scene until:

    -Bingo fuel.

    -Encountering an emergency of our own

    -Properly relieved. PIC will assume on scene commander duties.

i) **Damaged Aircraft / Midair / Birdstrike**

-If both aircrew or the aircraft are unable to remain airborne – Eject.

-If the aircraft is controllable – Determine the nature of the damage and perform a Controllability Check above 6,500' AGL (minimum) IAW NATOPS, recommend 8,000 to 10,000' AGL.

-Birdstrike Within Prop Arc – Consider a PEL to the nearest suitable field.

-Birdstrike Outside Prop Arc – If controllability is in question, perform a Controllability Check.

j) **Inadvertent Out of Control Flight:** Recite CAMIs IAW NATOPS.

k) **CFS**

On deck IAW emergency ground egress:

    -Call "Standby CFS" and allow time to remove pins. Confirm pins removed in each cockpit.

    -Call "**CFS CFS CFS**" (locate, rotate, and pull on the third command) for simultaneous detonation.

Airborne: (If required for in flight smoke/fume elimination assuming initial NATOPS procedures of descend below 10,000 MSL, pressurization switch to ram/dump, and bleed air inflow off are not effective.)

    -Stow CFS pin prior to detonating the canopy to minimize FOD.

    -Detonate the aft transparency IAW NATOPS calling CFS, CFS, CFS for awareness of the front cockpit occupant.

-At all times, fly with mask on, visor down, collar up, gloves on, and sleeves rolled down to avoid skin injuries.

l) **Ejection:** 6,000'AGL OCF, 2,000' AGL controlled. Calculate highest field elevation along route of flight to determine BARRO ALT reading. (e.g. Highest field elevation we will encounter today is Evergreen, so ejection readings will be 6,300 and 2,300) Consider use of MOR handle if operating in terrain above 8,000 MSL.

Proper body position on the way up, execute I-I-R-O-K- on the way down (ADR for a water entry scenario).

i) Immediate:

-Utilized when terrain impact or death is imminent and an ICS call would delay ejection to the point both aircrew are outside the envelope for survivability.

-BOTH: Either occupant pull the handle. It's better to be injured and alive than dead due to delaying for the call and good body position.

-SOLO: Rear occupant pull the handle followed by the front ½ second later. It should be obvious to the front occupant to pull the handle after the rear occupant leaves the aircraft. It's better to be injured and alive than dead due to delaying for the call and good body position.

ii) Time Critical:

-Utilized when terrain impact or death is NOT imminent, but landing at a suitable field is not an option.

-If able, Aircrew should:

-Steer the aircraft toward an unpopulated area

-Roll wings level

-Minimize sink rate

-Make radio call over the current frequency or Guard with position anchored to the nearest NAVAID or airfield

-Initiate ejection

-BOTH: First "EJECT…" call – Assume proper body position, third "EJECT..."call – Both aircrew pull their respective handles.

-SOLO: First "EJECT…" call – Assume proper body position, third "EJECT..." call – Rear cockpit pulls their handle, and front cockpit pulls the handle one-half second later.

iii) Controlled:

-Communicate intentions to ATC (and wingman if applicable).

-Proceed toward EJECL/EJECW FMS waypoints when in the local area. Locate unpopulated area when outside the local area.

-Execute controlled ejection checklist.

-PIC will take controls and select PCL OFF.

-PIC will then call "EJECT, EJECT, EJECT!"

iv) Loss of ICS (assumes the inability to communicate using discrete frequency)

-Immediate: Prioritize initiating ejection over signaling to eject.

-BOTH: Either occupant pull the handle.

-SOLO: Rear occupant pull the handle followed by the front occupant ½ second later. It should be obvious to the front occupant to pull the handle after the rear occupant leaves the aircraft.

-Time Critical:

-Steer the aircraft toward an unpopulated area

-Roll wings level

-Minimize sink rate

-Make radio call in the blind over the current frequency or Guard with position anchored to the nearest NAVAID or airfield

-Initiate ejection

-BOTH: Whoever bangs on the canopy will pull their respective handle (ditty: "whoever does the pounding, does the pulling"). The cadence for the pilot initiating will be "BANG, BANG, BANG…grab handle, PULL." If the other crewmember has not observed initiation of the ejection sequence after 3 seconds, they will pull their respective handle.

-SOLO: The rear seat crewmember will pull their handle followed by the front seat crewmember one-half second later.

-Controlled:

-Gain the other crewmember's attention with the "face-curtain" signal to show intentions to eject.

-Show the Pocket Checklist to the other crewmember confirming initiation of the controlled ejection checklist.

-When complete with the checklist, give a thumbs up signifying "ready for ejection."

-The PIC will take the controls, select PCL OFF, and initiate the ejection sequence with "BANG, BANG, BANG...grab handle, PULL" cadence.

v) Post Ejection Procedures:

-I-I-R-O-K (Cover over land and over water scenarios during IIROK discussion)

-Inspect canopy and risers

-Inflate LPU

-Release raft over water using kit release handle on left side of seat.

-Over land: Do NOT RELEASE RAFT.

-Options (V-O-G-S-L)

Visor, Oxygen mask, Gloves, SSK, LeMoinge slots/steering toggles

-Over land

-Mask - On

-Visor - Down

-Gloves - On

-SSK

-Night or over trees - Retain SSK for injury prevention.

-Day time and safe cleared landing site - Below 200' AGL, release SSK using lower fittings to facilitate PLF.

-LeMoinge slots/toggles – Steer into the wind.

-Over water

-Mask - Remove

-Visor - Up

-Gloves - Stow in survival vest

-SSK - Raft already released

-Koch fittings (upper)

-Over land

-Release after Parachute Landing Fall

-Over water

-Release after feet touch the water

-A-D-R over water

-Avoid - Parachute

-Disentangle - Disentangle from risers using hands, avoid kicking with feet

-Retrieve - Retrieve life raft and survival items. Release right lap strap only to board the raft.

- Locate the AN/URT-140 seat beacon and set it to BLADE, UNTIMED, 406.

- Attempt to establish communication with the other crewmember via cellphone and/or 282.8 on the PRC-90 survival radio.

- Once the seat beacon is set, attempt to contact SAR assets using the PRC-90 on 243.0.

- Once in communication with a SAR asset, be prepared to switch to 282.8 if directed.

4) <u>Mission Specific ORM</u>

a) Contact

i) Gx: Discuss procedure.

ii) Energy Management: Discuss efficient execution of maneuvers (i.e. energy gainer followed by loser)

iii) Area Management: Minimum altitude for aerobatics, wind effects, how to intercept course rules without OLF operations.

      iv) Clearing Procedures: Minimum 45° AoB, max 60° AoB clean, Max AoB 45° dirty, for a total of 180° turn or two turns of 90°. If aerobatics in Pelican/Wahoo squawk 4700.

      v) Landing irregularities: High flare, late flare, balloon, bounce, floating, porpoise, etc.

b) Formation

      i) Blind: IAW FTI/VT-6 Formation Supplemental. Lead will relay "Point 1" position over TAC frequency.

      ii) Lost Sight: Discuss procedures IAW the FTI (straight and level, turns into wing man, turns away from wingman, section approach).

      iii) Gx/Tail Chase: Discuss procedure and limits IAW FTI.

      iv) KIO/Terminate: Brief definition, proper procedures, and safety parameters.

c) INAV

      i) Spatial Disorientation: Discuss VMC into IMC and vice versa. Additionally, discuss how abrupt corrections can induce vertigo and Spatial-D.

      ii) Missed Approach Criteria:
      -Runway environment not in sight at Decision Altitude/Missed Approach Point.
      -Full scale CDI deflection at any point on the approach.
      -Faulty RAIM for RNAV approach.
      -Inability to safely land from the MAP.

      iii) Missed Approach vs. Climb-out Instructions:
      -Missed approaches shall be conducted IAW FTI procedures when the above criteria are met, and a full stop landing is intended.
      -Set full power, set attitude 10-15° nose up, raise gear and flaps, and comply w/published missed or climb out instructions.
      -Climb out instructions are for practice approaches and should be received from the approach controller prior to being switched to the tower controller.
      -CNAF 3710.7 fuel planning mins.

d) Night

      i) Sunset/Moonrise:
      -Discuss night vision adaptation.
      -Check illumination levels vs cloud cover.
      -Sunset/moonrise considerations. (TIMS has this information).
      -Takeoff no earlier than 30 minutes after sunset for night contact.

      ii) Personal equipment: Clear visor, flashlight etc.

      iii) Aircraft / Cockpit lighting:
      -Check all lights prior to start.
      -Day into night, all lighting starts bright and is dimmed as it gets darker.
      -Starting at night, lighting set to lowest readable level.
      -Anti-collision lights off in the line area to prevent blinding line personnel.

      iv) Spatial-D:
      -VMC into IMC.
      -VMC specific illusions (false horizons, flicker vertigo, false glide slopes [No VGSI available], etc).
      -Minimize abrupt corrections that may worsen or re-introduce Vertigo or Spatial-D.

      v) Night landings/Fixation:
      -Understand how runway construction and lighting can alter visual perception of the landing transition.
      -Don't spot the deck.

      vi) Lookout/Obstacle avoidance:
      -Utilize good VFR scan.
      -Discuss autokenesis
      -Focal blind spot
      -Night illusions.

e) VNAV

      i) Route brief:
      -Route entry (the first checkpoint)

- -Leg timing
- -Turns
- -Route exit (last checkpoint).
  - **ii)** Route restrictions:
    - -Obstacles
    - -Altitude restrictions
    - -Restricted/prohibited areas.
  - **iii)** Planned Altitudes/Airspeeds
  - **iv)** RADALT Settings
  - **v)** MSA/ESA: Ensure it is thoroughly understood and accurate for the entire route
  - **vi)** Deteriorating WX: Especially applicable at night when WX conditions are hard to see. Obscuration of the sky, cultural lighting, increase flashing from anti-collision lights, etc. will be indicators of deteriorating weather.
  - **vii)** Loss of Situational Awareness
- **f) CCX / Off Station OPS**
  - **i)** PPR/Fuel Packet
  - **ii)** Suitable runway at destination
  - **iii)** Airfield familiarity/review: Layout, NOTAMS, Parking location
  - **iv)** Contract Fuel/FBO
  - **v)** Orders/Lodging/Transportation
  - **vi)** Oil
  - **vii)** Government Travel Card
- **g) IP / IP**
  - **i)** Test completed within 60 days
  - **ii)** Complacency
  - **iii)** Student Trends

5) DOR / TTO policy

6) JPPT Discussion